

**APPLICATION OF RAMAN SPECTROSCOPY TO THE IDENTIFICATION OF
ASBESTOS MINERALS**

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The techniques normally employed in the identification of asbestos phases often require lengthy sample preparation, implying a greater risk for the creation of artefacts. Raman spectroscopy, instead, is useful in determining the mineralogical phases present in fibrous minerals because it does not require sample preparation and because it allows the Raman spectrum of a mineral to be obtained by placing the specimen directly in the path of the incident beam. If an optical microscope is coupled with the spectrometer, the Raman spectrum of a small, optically selected portion of the sample can also be obtained. The potential applications of this technique are especially promising in the case of specimens composed of different mineralogical phases, as is often the case with asbestos; moreover, the technique can also be applied to different materials, such as those used in the building industry, to determine whether they contain asbestos or not. This study demonstrates that unequivocal identification of the mineral phase can be attained by analyzing the position in the Raman spectrum of the bands related to the $[\text{SiO}_4]^{4-}$ vibrational modes. A practical application of Raman spectroscopy to a synthetic cement is also presented.